

NO L# DEFINED

=> d acc ab(5117126)

US PAT NO: 5,117,126 [IMAGE AVAILABLE]

ANS: 1

ABSTRACT:

A stacked OPO is disclosed wherein two or more optically nonlinear media, such as crystals, are coaxially disposed in a single resonator. Incident radiation is coupled into the resonator, and causes parametric oscillations of the two crystals. The two crystals are independently tuned, such as by angular orientation, to produce distinct components of secondary radiation. A first one of the crystals is disposed nearer to the source of incident radiation, and a second one of the crystals is disposed nearer to the output coupler of the resonator. This causes the first crystal to experience a greater effective gain. Furthermore, the secondary radiation from the first crystal will tend to dominate and "seed" the secondary radiation from the

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U.S. Patent & Trademark Office

P0004

US PAT NO: 5,117,126 [IMAGE AVAILABLE]

ANS: 1

second crystal, when their bandwidths are narrowly separated. The dominance of the first crystal is controlled in various ways: 1) by shortening the length of the first crystal, 2) by differential bevelling of the first crystal with respect to the optical axis of the resonator, or 3) by detuning the output coupling mirror of the resonator with respect to the output of the first crystal. Either method effectively balances the effective gains of the two crystals so that two, independently tunable and efficient signal frequencies can be achieved. Seeding the OPO stack is also disclosed. Alternate techniques of seeding include the use of a tunable diode laser, a second low power OPO and a second OPO using a Faraday Anomalous Dispersion Optical Filter (FADOF). Techniques for angle tuning the OPO stack and compensating for walkoff are disclosed.

=> d acc kwic 5117126

23 OCT 92 11:00:17

U.S. Patent & Trademark Office

P0005

'KWIC' IS NOT A VALID FORMAT

ENTER DISPLAY FORMAT (CIT):

1. 5,117,126, May 26, 1992, Stacked optical parametric oscillator; Allen R. Geiger, 359/330; 307/424; 359/328; 372/21, 22 [IMAGE AVAILABLE]

=> log y

U.S. Patent & Trademark Office LOGOFF AT 11:00:40 ON 23 OCT 92

CLMS(38)

38. A method of preventing damage to skin by **ultraviolet light** comprising the step of applying a topical composition to the skin consisting essentially of from at least about 1% ascorbic. . .

CLAIMS:

CLMS(40)

40. A method of treating damage to skin by **ultraviolet light** comprising the step of applying a topical composition to the skin consisting essentially of from at least about 1% ascorbic. . .

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U.S. Patent & Trademark Office

P0046

US PAT NO: 5,140,043 [IMAGE AVAILABLE]

L10: 1 of 1

CLMS(40)

CLAIMS:

CLMS(42)

42. A method of retarding damage to skin by **ultraviolet light** which comprises applying a topical composition to the skin containing at least about 1% ascorbic acid (w/v) in water and. . .

=> d ab 15 48

US PAT NO: 4,177,202

L5: 48 of 72

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U.S. Patent & Trademark Office

P0047

US PAT NO: 4,177,202

L5: 48 of 72

ABSTRACT:

Light gases rich in methane and ethane are produced from synthesis gas by contacting a CO reducing component of molybdena alone or in combination with an element selected from the group consisting of cobalt and vanadium distributed on a support of alumina or silica/alumina. The presence of hydrogen sulfide in the syngas feed enhances the activity and selectivity for the catalysts to produce ethane rich light gases.

=> d ab 15 71

US PAT NO: 3,617,936

L5: 71 of 72

ABSTRACT:

A singly resonant **optical parametric oscillator** (SRO) is pumped

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U.S. Patent & Trademark Office

P0048

US PAT NO: 3,617,936

L5: 71 of 72

by a high power, pulsed source and is tuned approximately to a predetermined desired frequency. Radiation of that frequency is injected into a mode of the SRO from a stabilized, low-power injection source. The output of the SRO is a pulsed, high-power signal with frequency equal to the predetermined frequency to a high degree of accuracy.

=> log y

d ab 15 6

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U.S. Patent & Trademark Office

P0003

SET PAGELENGTH 19

SET LINELENGTH 78

L1 0 S OPTICAL(W) PARAMETRIC(W) OSCILLATOR(W) LASER
L2. 49 S OPTICAL PARAMETRIC OSCILLATOR
L3 302 S (L2 OR METHANE(W) CONVERSION)
L4 0 S L2 AND METHANE CONVERSION
L5 72 S (L2 OR ETHANE(W) PRODUCTION)
L6 0 S L2 AND ETHANE PRODUCTION
L7 2 S L2 AND 204*?/CCLS
L8 2 S L5 AND 204*?/CCLS
L9 0 S ETHANE PRODUCTION USING LASER
L10 1 S ETHANE PRODUCTION AND ULTRAVIOLET(W) LIGHT

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U.S. Patent & Trademark Office

P0042

=> d ab 110 1

US PAT NO: 5,140,043 [IMAGE AVAILABLE]

L10: 1 of 1

ABSTRACT:

Stable topical aqueous compositions are provided containing a concentration of L-ascorbic acid above about 1% (W/V) and maintaining a pH below about 3.5.

=> d kwic 110

US PAT NO: 5,140,043 [IMAGE AVAILABLE]

L10: 1 of 1

SUMMARY:

BSUM(3)

10:50:52 10:53:57

U.S. Patent & Trademark Office

P0043

US PAT NO: 5,140,043 [IMAGE AVAILABLE]

L10: 1 of 1

BSUM(3)

L-ascorbic . . . and Tappel, "The Effect of Vitamin C on in vivo Lipid Peroxidation in Guinea Pigs as Measured by Pentane and ~~Ethane~~ ~~Production~~, Lipids

SUMMARY:

BSUM(18)

We . . . that about 2.5. Such a composition appears to allow ready penetration into the skin and retards the damage caused by ~~ultraviolet~~ ~~light~~.

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U.S. Patent & Trademark Office

P0044

US PAT NO: 5,140,043 [IMAGE AVAILABLE]

L10: 1 of 1

BSUM(18)

CLAIMS:

CLMS(32)

32. A method of retarding damage to skin by ~~ultraviolet~~ ~~light~~ which comprises applying a topical composition on the skin consisting essentially of at least about 1% ascorbic acid (w/v) in. . .

CLAIMS:

CLMS(38)

10:50:42 10:54:11

U.S. Patent & Trademark Office

P0045

CLMS(11)

18:00T352 10:50:41

U.S. Patent & Trademark Office

P0037

US PAT NO: 4,433,193

L5: 35 of 72

CLMS(11)

11. The process of claim 1, wherein the residence time in the reaction zone is less than 1 second.

CLMS(12)

12. The process of claim 1, wherein the aromatic hydrocarbon is preheated to a temperature of at least 1100.degree. F. before introduction to the reactor zone.

CLMS(13)

13. The process of claim 12 wherein the hydrogen is preheated to at least 1100.degree. F. before introduction to the reactor zone.

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U.S. Patent & Trademark Office

P0038

US PAT NO: 4,433,193

L5: 35 of 72

CLMS(13)

CLMS(14)

14. The process of claim 13, wherein the hydrogen is admixed with the aromatic hydrocarbon in the reactor zone.

CLMS(15)

15. The process of claim 1, wherein the feedstock hydrocarbon comprises non-alkylated aromatics.

CLMS(16)

20:00T492 10:50:56

U.S. Patent & Trademark Office

P0039

US PAT NO: 4,433,193

L5: 35 of 72

CLMS(16)

16. The process of claim 1 comprising the further step of producing a portion of the hydrogen from methane produced in the hydrogasification reaction.

CLMS(17)

17. The process of claim 1 further comprising the step of producing a portion of the hydrogen from the polyaromatics produced in the hydrogasification reaction.

=>

d his

CLMS(1)

- (c) discharging the resultant ethane-containing reaction product from said zone; and
(d) immediately cooling said product.

CLMS(2)

2. The process of claim 1, wherein the reactor zone comprises a fluidized bed of inert solids.

CLMS(3)

3. The process of claim 1, wherein the feedstock hydrocarbons are at least 40 mole percent aromatic.

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U.S. Patent & Trademark Office

P0034

US PAT NO: 4,433,193

L5: 35 of 72

CLMS(3)

CLMS(4)

4. The process of claim 1 comprising the further step of adding methane to the hydrogen.

CLMS(5)

5. The process of claim 1 comprising the further step of adding methane to the hydrogen in the hydrogenating gas in amounts in the order of about 25 molar percent to about 75 molar percent based on the total amount of hydrogen.

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U.S. Patent & Trademark Office

P0035

US PAT NO: 4,433,193

L5: 35 of 72

CLMS(6)

6. The process of claim 1, wherein the reaction zone is essentially isothermal.

CLMS(7)

7. The process of claim 1, wherein the feedstock in the reaction zone is heated essentially exclusively through heat of reaction of said feedstock.

CLMS(8)

8. The process of claim 1, wherein the residence time is less than about 3 seconds.

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U.S. Patent & Trademark Office

P0036

US PAT NO: 4,433,193

L5: 35 of 72

CLMS(8)

CLMS(9)

9. The process of claim 1, wherein the temperature in the reaction zone is between 1200.degree. and 1500.degree. F.

CLMS(10)

10. The process of claim 1, wherein the pressure in the reaction zone is between 500 to 2000 psia.

US PAT NO: 3,617,764 [IMAGE AVAILABLE]
TITLE: FAR INFRARED WAVE GENERATOR OR MIXER

L5: 72 of 72

=> d ab 15 35

US PAT NO: 4,433,193

L5: 35 of 72

ABSTRACT:

An improved process for producing ethane from aromatic hydrocarbons is described. Hydrogen and the hydrocarbons are introduced into a catalytically inert reactor zone and are reacted under closely controlled conditions which provide an enhanced yield of ethane.

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U.S. Patent & Trademark Office

P0030

US PAT NO: 4,433,193

L5: 35 of 72

=> d kwic 15 35

US PAT NO: 4,433,193

L5: 35 of 72

DETDESC:

DETD(4)

An . . . both the feedstock employed and in the manner in which the reaction is carried out. In accordance with this invention, ethane production is maximized with an accompanying and unexpected decrease in in coking. Moreover, this is accomplished without the need of a . . .

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P0031

US PAT NO: 4,433,193

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DETD(4)

DETDESC:

DETD(38)

These results show the markedly increasing selectivity of ethane production encountered at shorter residence times in accordance with the process.

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U.S. Patent & Trademark Office

P0032

US PAT NO: 4,433,193

L5: 35 of 72

CLAIMS:

CLMS(1)

We claim:

1. A process for the production of ethane comprising:
 - (a) introducing a feedstock comprising mainly aromatic hydrocarbons and hydrogen into a non-catalytic reactor zone, the amount of hydrogen being between 1 and 4 times the stoichiometric requirement to convert all carbon in said feedstock into methane;
 - (b) reacting said feedstock at a temperature between 1100.degree. and 1400.degree. F. and pressure between 300 and 2500 psia for less than 240 seconds;

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U.S. Patent & Trademark Office

P0033

US PAT NO:	3,984,190	L5: 55 of 72	
TITLE:	Simultaneous transmission of periodic spectral components by plural interferometric means		
US PAT NO:	3,982,207	L5: 56 of 72	
TITLE:	Quantum effects in heterostructure lasers		
US PAT NO:	3,934,210 [IMAGE AVAILABLE]	L5: 57 of 72	
TITLE:	Tuning apparatus for an optical oscillator		
US PAT NO:	3,914,618 [IMAGE AVAILABLE]	L5: 58 of 72	
23 OCT 92 10:47:42	U.S. Patent & Trademark Office		P0026
US PAT NO:	3,914,618 [IMAGE AVAILABLE]	L5: 58 of 72	
TITLE:	TWO-PHOTON PUMPED FREQUENCY CONVERTER AND METHOD		
US PAT NO:	3,907,920	L5: 59 of 72	
TITLE:	Two-stage hydropyrolysis-cracking process for producing ethylene		
US PAT NO:	3,843,258	L5: 60 of 72	
TITLE:	DUAL BEAM ABSORPTION TYPE OPTICAL SPECTROMETER		
US PAT NO:	3,792,287 [IMAGE AVAILABLE]	L5: 61 of 72	
TITLE:	NON-LINEAR OPTICAL CRYSTAL AND DEVICES		
US PAT NO:	3,719,411 [IMAGE AVAILABLE]	L5: 62 of 72	
23 OCT 92 10:47:52	U.S. Patent & Trademark Office		P0027
US PAT NO:	3,719,411 [IMAGE AVAILABLE]	L5: 62 of 72	
TITLE:	CONTINUOUS COUPLING OF TUNABLE OR BROAD BAND RADIATION INTO THIN FILM WAVEGUIDES		
US PAT NO:	3,697,888 [IMAGE AVAILABLE]	L5: 63 of 72	
TITLE:	EVANESCENT WAVE COUPLING TECHNIQUE FOR BEAM SHAPING		
US PAT NO:	3,697,185	L5: 64 of 72	
TITLE:	METHOD AND APPARATUS FOR THE TIME SHARING OF MULTIPLE CHANNEL ANALYSIS MEANS		
US PAT NO:	3,675,039 [IMAGE AVAILABLE]	L5: 65 of 72	
TITLE:	COHERENT OPTICAL DEVICES EMPLOYING ZINC GERMANIUM PHOSPHIDE		
US PAT NO:	3,662,183	L5: 66 of 72	
23 OCT 92 10:48:03	U.S. Patent & Trademark Office		P0028
US PAT NO:	3,662,183	L5: 66 of 72	
TITLE:	CONTINUOUSLY TUNABLE OPTICAL PARAMETRIC OSCILLATOR		
US PAT NO:	3,655,993 [IMAGE AVAILABLE]	L5: 67 of 72	
TITLE:	OPTICALLY ROTATORY DIELECTRIC-GUIDED PARAMETRIC OSCILLATORS		
US PAT NO:	3,654,482	L5: 68 of 72	
TITLE:	MIRRORLESS OPTICAL CAVITY		
US PAT NO:	3,628,186	L5: 69 of 72	
TITLE:	PARAMETRIC OSCILLATOR WITH NONRESONANT SIGNAL		
US PAT NO:	3,628,182 [IMAGE AVAILABLE]	L5: 70 of 72	
TITLE:	RING-TYPE PARAMETRIC OSCILLATOR		
23 OCT 92 10:48:13	U.S. Patent & Trademark Office		P0029
US PAT NO:	3,617,936	L5: 71 of 72	
TITLE:	FREQUENCY CONTROL OF A PULSED PARAMETRIC OSCILLATOR BY RADIATION INJECTION		

US PAT NO:	4,411,520	L5: 37 of 72	
TITLE:	Light dispersion measuring apparatus		
US PAT NO:	4,405,869 [IMAGE AVAILABLE]	L5: 38 of 72	
TITLE:	Optical parametrons		
US PAT NO:	4,404,124	L5: 39 of 72	
TITLE:	Selective hydrogenation catalyst		
US PAT NO:	4,394,623 [IMAGE AVAILABLE]	L5: 40 of 72	
TITLE:	Ring cavity for a raman capillary waveguide amplifier		
23 OCT 92 10:47:02	U.S. Patent & Trademark Office		P0022
US PAT NO:	4,382,660 [IMAGE AVAILABLE]	L5: 41 of 72	
TITLE:	Optical transistors and logic circuits embodying the same		
US PAT NO:	4,381,923 [IMAGE AVAILABLE]	L5: 42 of 72	
TITLE:	Isotope separation with an infrared laser		
US PAT NO:	4,349,907 [IMAGE AVAILABLE]	L5: 43 of 72	
TITLE:	Broadly tunable picosecond IR source		
US PAT NO:	4,222,011 [IMAGE AVAILABLE]	L5: 44 of 72	
TITLE:	Stokes injected Raman capillary waveguide amplifier		
US PAT NO:	4,213,060	L5: 45 of 72	
TITLE:	Tunable infrared source employing Raman mixing		
23 OCT 92 10:47:12	U.S. Patent & Trademark Office		P0023
US PAT NO:	4,189,652	L5: 46 of 72	
TITLE:	Beam splitter coupled CDSE Optical Parametric Oscillator		
US PAT NO:	4,180,751	L5: 47 of 72	
TITLE:	Mode-locked Optical Parametric Oscillator apparatus		
US PAT NO:	4,177,202	L5: 48 of 72	
TITLE:	Methanation of synthesis gas		
US PAT NO:	4,157,949	L5: 49 of 72	
TITLE:	Catalytic process for treating light gasoline stocks		
US PAT NO:	4,146,504	L5: 50 of 72	
23 OCT 92 10:47:21	U.S. Patent & Trademark Office		P0024
US PAT NO:	4,146,504	L5: 50 of 72	
TITLE:	Porous powders and a method for their preparation		
US PAT NO:	4,032,419 [IMAGE AVAILABLE]	L5: 51 of 72	
TITLE:	Method and apparatus for separating uranium isotopes		
US PAT NO:	4,012,457	L5: 52 of 72	
TITLE:	Thermal cracking method for the production of ethylene and propylene in a molten metal bath		
US PAT NO:	4,005,937	L5: 53 of 72	
TITLE:	Simultaneous interferometric transmission of periodic spectral components		
US PAT NO:	3,999,854	L5: 54 of 72	
23 OCT 92 10:47:32	U.S. Patent & Trademark Office		P0025
US PAT NO:	3,999,854	L5: 54 of 72	
TITLE:	Simultaneous interferometric transmission of periodic spectral components		

TITLE: Electro-optic line narrowing of optical parametric oscillators

US PAT NO: 5,026,938 [IMAGE AVAILABLE] L5: 19 of 72

TITLE: Process for upgrading light apparatus

US PAT NO: 5,017,806 [IMAGE AVAILABLE] L5: 20 of 72

TITLE: Broadly tunable high repetition rate femtosecond ~~optical~~
~~parametric oscillator~~

US PAT NO: 4,950,828 [IMAGE AVAILABLE] L5: 21 of 72

TITLE: Process for upgrading light paraffins

23 OCT 92 10:46:22 U.S. Patent & Trademark Office P0018

US PAT NO: 4,946,813 [IMAGE AVAILABLE] L5: 22 of 72

TITLE: Catalysts for upgrading light paraffins

US PAT NO: 4,946,812 [IMAGE AVAILABLE] L5: 23 of 72

TITLE: Catalyst for upgrading light paraffins

US PAT NO: 4,891,463 L5: 24 of 72

TITLE: Aromatization of aliphatics over a zeolite containing
framework gallium

US PAT NO: 4,808,763 L5: 25 of 72

TITLE: Process for upgrading light paraffins

US PAT NO: 4,806,701 L5: 26 of 72

TITLE: Process for upgrading light paraffins

23 OCT 92 10:46:32 U.S. Patent & Trademark Office P0019

US PAT NO: 4,720,453 L5: 27 of 72

TITLE: Detecting environmental pollutants with protoplasts in
alginate matrix

US PAT NO: 4,639,923 [IMAGE AVAILABLE] L5: 28 of 72

TITLE: ~~Optical~~ Parametric oscillator using urea crystal

US PAT NO: 4,629,290 [IMAGE AVAILABLE] L5: 29 of 72

TITLE: Liquid crystal compounds and method of preparation

US PAT NO: H 15 L5: 30 of 72

TITLE: Broadband source of picosecond radiation

US PAT NO: 4,558,923 [IMAGE AVAILABLE] L5: 31 of 72

23 OCT 92 10:46:42 U.S. Patent & Trademark Office P0020

US PAT NO: 4,558,923 [IMAGE AVAILABLE] L5: 31 of 72

TITLE: Picosecond bistable optical switch using two-photon
transitions

US PAT NO: 4,493,764 L5: 32 of 72

TITLE: Separately supported polymetallic reforming catalyst

US PAT NO: 4,484,015 L5: 33 of 72

TITLE: Selective hydrogenation

US PAT NO: 4,477,590 L5: 34 of 72

TITLE: Separately supported polymetallic reforming catalyst

US PAT NO: 4,433,193 L5: 35 of 72

TITLE: Process for the production of ethane

23 OCT 92 10:46:52 U.S. Patent & Trademark Office P0021

US PAT NO: 4,411,755 [IMAGE AVAILABLE] L5: 36 of 72

TITLE: Laser-assisted isotope separation of tritium

US PAT NO:	5,144,630 [IMAGE AVAILABLE]	L5: 1 of 72	
TITLE:	Multiwavelength solid state laser using frequency conversion techniques		
US PAT NO:	5,144,629 [IMAGE AVAILABLE]	L5: 2 of 72	
TITLE:	Method and apparatus for laser tuning		
US PAT NO:	5,140,043 [IMAGE AVAILABLE]	L5: 3 of 72	
TITLE:	Stable ascorbic acid compositions		
23 OCT 92 10:45:40	U.S. Patent & Trademark Office		P0014
US PAT NO:	5,134,622 [IMAGE AVAILABLE]	L5: 4 of 72	
TITLE:	Diode-pumped Optical Parametric Oscillator		
US PAT NO:	5,128,293 [IMAGE AVAILABLE]	L5: 5 of 72	
TITLE:	Catalyst for upgrading light paraffins		
US PAT NO:	5,117,126 [IMAGE AVAILABLE]	L5: 6 of 72	
TITLE:	Stacked Optical Parametric Oscillator		
US PAT NO:	5,114,565 [IMAGE AVAILABLE]	L5: 7 of 72	
TITLE:	Reforming naphtha with boron-containing large-pore zeolites		
US PAT NO:	5,079,445 [IMAGE AVAILABLE]	L5: 8 of 72	
TITLE:	High output coupling cavity design for optical parametric oscillators		
23 OCT 92 10:45:51	U.S. Patent & Trademark Office		P0015
US PAT NO:	5,070,260 [IMAGE AVAILABLE]	L5: 9 of 72	
TITLE:	Ultrahigh-resolution Optical Parametric Oscillator frequency measurement and synthesis system		
US PAT NO:	5,066,291 [IMAGE AVAILABLE]	L5: 10 of 72	
TITLE:	Solid-state laser frequency conversion system		
US PAT NO:	5,065,046 [IMAGE AVAILABLE]	L5: 11 of 72	
TITLE:	Method and apparatus for parametric generation of midinfrared light in KNbO ₃		
US PAT NO:	5,053,641 [IMAGE AVAILABLE]	L5: 12 of 72	
TITLE:	Tunable Optical Parametric Oscillator		
US PAT NO:	5,052,806 [IMAGE AVAILABLE]	L5: 13 of 72	
23 OCT 92 10:46:01	U.S. Patent & Trademark Office		P0016
US PAT NO:	5,052,806 [IMAGE AVAILABLE]	L5: 13 of 72	
TITLE:	Apparatus for measuring non-absorptive scattering		
US PAT NO:	5,047,668 [IMAGE AVAILABLE]	L5: 14 of 72	
TITLE:	Optical walkoff compensation in critically phase-matched three-wave frequency conversion systems		
US PAT NO:	5,043,306 [IMAGE AVAILABLE]	L5: 15 of 72	
TITLE:	Catalysts for upgrading light paraffins		
US PAT NO:	5,034,951 [IMAGE AVAILABLE]	L5: 16 of 72	
TITLE:	Femtosecond ultraviolet laser using ultra-thin beta barium borate		
US PAT NO:	5,033,057 [IMAGE AVAILABLE]	L5: 17 of 72	
23 OCT 92 10:46:12	U.S. Patent & Trademark Office		P0017
US PAT NO:	5,033,057 [IMAGE AVAILABLE]	L5: 17 of 72	
TITLE:	Pump steering mirror cavity		
US PAT NO:	5,028,816 [IMAGE AVAILABLE]	L5: 18 of 72	

One such process involves the steps of (1) catalytic exchange of a deuterium-bearing molecule XYD with tritiated water DTD from sources such as a heavy water fission reactor, to produce the tritium-bearing working molecules XYT and (2) photoselective dissociation of XYT to form a tritium-rich product. By an analogous procedure, tritium is separated from tritium-bearing materials that contain predominately hydrogen such as a light water coolant from fission or fusion reactors.

US PAT NO: 4,032,419 [IMAGE AVAILABLE]

LB: 2 of 2

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U.S. Patent & Trademark Office

P0011

US PAT NO: 4,032,419 [IMAGE AVAILABLE]

LB: 2 of 2

ABSTRACT:

A uranium compound in the solid phase (uranium borohydride four) is subjected to radiation of a first predetermined frequency that excites the uranium-235 isotope-bearing molecules but not the uranium-238 isotope-bearing molecules. The compound is simultaneously subjected to radiation of a second predetermined frequency which causes the excited uranium-235 isotope-bearing molecules to chemically decompose but which does not affect the uranium-238 isotope-bearing molecules. Sufficient heat is then applied to the irradiated compound in the solid phase to vaporize the non-decomposed uranium-238 isotope-bearing molecules but not the decomposed uranium-235 isotope-bearing molecules, thereby physically separating the uranium-235 isotope-bearing molecules from the uranium-238 isotope-bearing molecules.

The uranium compound sample in the solid phase is deposited or grown in an elongated tube supported within a dewar vessel having a clear optical path

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U.S. Patent & Trademark Office

P0012

US PAT NO: 4,032,419 [IMAGE AVAILABLE]

LB: 2 of 2

tail section surrounded by a coolant. Two sources of radiation are focused on the uranium compound sample. A heating element is attached to the elongated tube to vaporize the irradiated compound.

=>

ABSTRACT:

Methods for laser-assisted isotope separation of tritium, using infrared multiple photon dissociation of tritium-bearing products in the gas phase. One such process involves the steps of (1) catalytic exchange of a deuterium-bearing molecule XYD with tritiated water DTO from sources such as

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US PAT NO: 4,411,755 [IMAGE AVAILABLE]

L7: 1 of 2

a heavy water fission reactor, to produce the tritium-bearing working molecules XYT and (2) photoselective dissociation of XYT to form a tritium-rich product. By an analogous procedure, tritium is separated from tritium-bearing materials that contain predominately hydrogen such as a light water coolant from fission or fusion reactors.

US PAT NO: 4,032,419 [IMAGE AVAILABLE]

L7: 2 of 2

ABSTRACT:

A uranium compound in the solid phase (uranium borohydride four) is subjected to radiation of a first predetermined frequency that excites the uranium-235 isotope-bearing molecules but not the uranium-238 isotope-bearing molecules. The compound is simultaneously subjected to radiation of a second predetermined frequency which causes the excited uranium-235 isotope-bearing molecules to chemically decompose but which does not affect the uranium-238

23 OCT 92 10:43:07 U.S. Patent & Trademark Office P0008

US PAT NO: 4,032,419 [IMAGE AVAILABLE]

L7: 2 of 2

isotope-bearing molecules. Sufficient heat is then applied to the irradiated compound in the solid phase to vaporize the non-decomposed uranium-238 isotope-bearing molecules but not the decomposed uranium-235 isotope-bearing molecules, thereby physically separating the uranium-235 isotope-bearing molecules from the uranium-238 isotope-bearing molecules. The uranium compound sample in the solid phase is deposited or grown in an elongated tube supported within a dewar vessel having a clear optical path tail section surrounded by a coolant. Two sources of radiation are focused on the uranium compound sample. A heating element is attached to the elongated tube to vaporize the irradiated compound.

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(FILE 'USPAT' ENTERED AT 10:37:04 ON 23 OCT 92)

23 OCT 92 10:43:31

U.S. Patent & Trademark Office

P0009

SET PAGELength 19

SET LINELENGTH 78

L1 0 S OPTICAL(W) PARAMETRIC(W) OSCILLATOR(W) LASER
L2 49 S OPTICAL PARAMETRIC OSCILLATOR
L3 302 S (L2 OR METHANE(W) CONVERSION)
L4 0 S L2 AND METHANE CONVERSION
L5 72 S (L2 OR ETHANE(W) PRODUCTION)
L6 0 S L2 AND ETHANE PRODUCTION
L7 2 S L2 AND 204*?/CCLS

=> s 15 and 204*?/ccls

39104 204*?/CCLS

(204/?/CCLS)

L8 2 L5 AND 204*?/CCLS

=> d ab 18 1-2

23 OCT 92 10:44:26

U.S. Patent & Trademark Office

P0010

US PAT NO: 4,411,755 [IMAGE AVAILABLE]

L8: 1 of 2

ABSTRACT:

Methods for laser-assisted isotope separation of tritium, using infrared multiple photon dissociation of tritium-bearing products in the gas phase.

=> d acc ab 5117126

US PAT NO: 5,117,126 [IMAGE AVAILABLE]

ANS: 1

ABSTRACT:

A stacked OPO is disclosed wherein two or more optically nonlinear media, such as crystals, are coaxially disposed in a single resonator. Incident radiation is coupled into the resonator, and causes parametric oscillations of the two crystals. The two crystals are independently tuned, such as by angular orientation, to produce distinct components of secondary radiation. A first one of the crystals is disposed nearer to the source of incident radiation, and a second one of the crystals is disposed nearer to the output coupler of the resonator. This causes the first crystal to experience a greater effective gain. Furthermore, the secondary radiation from the first crystal will tend to dominate and "seed" the secondary radiation from the

23 OCT 92 10:59:34

U.S. Patent & Trademark Office

P0004

US PAT NO: 5,117,126 [IMAGE AVAILABLE]

ANS: 1

second crystal, when their bandwidths are narrowly separated. The dominance of the first crystal is controlled in various ways: 1) by shortening the length of the first crystal, 2) by differential bevelling of the first crystal with respect to the optical axis of the resonator, or 3) by detuning the output coupling mirror of the resonator with respect to the output of the first crystal. Either method effectively balances the effective gains of the two crystals so that two, independently tunable and efficient signal frequencies can be achieved. Seeding the OPO stack is also disclosed. Alternate techniques of seeding include the use of a tunable diode laser, a second low power OPO and a second OPO using a Faraday Anomalous Dispersion Optical Filter (FADOF). Techniques for angle tuning the OPO stack and compensating for walkoff are disclosed.

=> d acc kwic 5117126

23 OCT 92 11:00:17

U.S. Patent & Trademark Office

P0005

'KWIC' IS NOT A VALID FORMAT
ENTER DISPLAY FORMAT (CIT):

1. 5,117,126, May 26, 1992, Stacked optical parametric oscillator; Allen R. Geiger, 359/330; 307/424; 359/328; 372/21, 22 [IMAGE AVAILABLE]

=> log y

U.S. Patent & Trademark Office LOGOFF AT 11:00:40 ON 23 OCT 92

CLMS(38)

36. A method of preventing damage to skin by **ultraviolet light** comprising the step of applying a topical composition to the skin consisting essentially of from at least about 1% ascorbic.

CLAIMS:

CLMS(40)

40. A method of treating damage to skin by **ultraviolet light** comprising the step of applying a topical composition to the skin consisting essentially of from at least about 1% ascorbic.

23 OCT 92 10:54:17

U.S. Patent & Trademark Office

P0046

US PAT NO: 5,140,843 [IMAGE AVAILABLE]

L10: 1 of 1

CLMS(40)

CLAIMS:

CLMS(42)

42. A method of retarding damage to skin by **ultraviolet light** which comprises applying a topical composition to the skin containing at least about 1% ascorbic acid (w/v) in water and.

=> d ab 15 48

US PAT NO: 4,177,202

L5: 48 of 72

23 OCT 92 10:55:07

U.S. Patent & Trademark Office

P0047

US PAT NO: 4,177,202

L5: 48 of 72

ABSTRACT:

Light gases rich in methane and ethane are produced from synthesis gas by contacting a CO reducing component of molybdena alone or in combination with an element selected from the group consisting of cobalt and vanadium distributed on a support of alumina or silica/alumina. The presence of hydrogen sulfide in the syngas feed enhances the activity and selectivity for the catalysts to produce ethane rich light gases.

=> d ab 15 71

US PAT NO: 3,617,936

L5: 71 of 72

ABSTRACT:

A singly resonant **optical parametric oscillator** (SRO) is pumped

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U.S. Patent & Trademark Office

P0048

US PAT NO: 3,617,936

L5: 71 of 72

by a high power, pulsed source and is tuned approximately to a predetermined desired frequency. Radiation of that frequency is injected into a mode of the SRO from a stabilized, low-power injection source. The output of the SRO is a pulsed, high-power signal with frequency equal to the predetermined frequency to a high degree of accuracy.

=> log y

d ab 15 6

SET PAGELength 19
SET LINELENGTH 78

L1 0 S OPTICAL(W) PARAMETRIC(W) OSCILLATOR(W) LASER
L2 49 S OPTICAL PARAMETRIC OSCILLATOR
L3 302 S (L2 OR METHANE(W) CONVERSION)
L4 0 S L2 AND METHANE CONVERSION
L5 72 S (L2 OR ETHANE(W) PRODUCTION)
L6 0 S L2 AND ETHANE PRODUCTION
L7 2 S L2 AND 204*?/CCLS
L8 2 S L5 AND 204*?/CCLS
L9 0 S ETHANE PRODUCTION USING LASER
L10 1 S ETHANE PRODUCTION AND ULTRAVIOLET(W) LIGHT

23 OCT 92 10:53:19

U.S. Patent & Trademark Office

P0042

=> d ab 110 1

US PAT NO: 5,140,043 [IMAGE AVAILABLE]

L10: 1 of 1

ABSTRACT:

Stable topical aqueous compositions are provided containing a concentration of L-ascorbic acid above about 1% (W/V) and maintaining a pH below about 3.5.

=> d kwic 110

US PAT NO: 5,140,043 [IMAGE AVAILABLE]

L10: 1 of 1

SUMMARY:

BSUM(3)

20:50:55 10:53:57

U.S. Patent & Trademark Office

P0043

US PAT NO: 5,140,043 [IMAGE AVAILABLE]

L10: 1 of 1

BSUM(3)

L-ascorbic . . . and Tappel, "The Effect of Vitamin C on in vivo Lipid Peroxidation in Guinea Pigs as Measured by Pentane and ~~Ethane~~ ~~Production~~, Lipids

SUMMARY:

BSUM(18)

We . . . that about 2:5. Such a composition appears to allow ready penetration into the skin and retards the damage caused by ~~ultraviolet~~ ~~light~~.

23 OCT 92 10:54:04

U.S. Patent & Trademark Office

P0044

US PAT NO: 5,140,043 [IMAGE AVAILABLE]

L10: 1 of 1

BSUM(18)

CLAIMS:

CLMS(32)

32. A method of retarding damage to skin by ~~ultraviolet~~ ~~light~~ which comprises applying a topical composition on the skin consisting essentially of at least about 1% ascorbic acid (w/v) in. . .

CLAIMS:

CLMS(38)

CLMS(11)

23:50T352 10:50:41

U.S. Patent & Trademark Office

P0037

US PAT NO: 4,433,193

L5: 35 of 72

CLMS(11)

11. The process of claim 1, wherein the residence time in the reaction zone is less than 1 second.

CLMS(12)

12. The process of claim 1, wherein the aromatic hydrocarbon is preheated to a temperature of at least 1100.degree. F. before introduction to the reactor zone.

CLMS(13)

13. The process of claim 12 wherein the hydrogen is preheated to at least 1100.degree. F. before introduction to the reactor zone.

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U.S. Patent & Trademark Office

P0038

US PAT NO: 4,433,193

L5: 35 of 72

CLMS(13)

CLMS(14)

14. The process of claim 13, wherein the hydrogen is admixed with the aromatic hydrocarbon in the reactor zone.

CLMS(15)

15. The process of claim 1, wherein the feedstock hydrocarbon comprises non-alkylated aromatics.

CLMS(16)

23:50T492 10:50:56

U.S. Patent & Trademark Office

P0039

US PAT NO: 4,433,193

L5: 35 of 72

CLMS(16)

16. The process of claim 1 comprising the further step of producing a portion of the hydrogen from methane produced in the hydrogasification reaction.

CLMS(17)

17. The process of claim 1 further comprising the step of producing a portion of the hydrogen from the polyaromatics produced in the hydrogasification reaction.

=>

and his

CLMS(1)

- (c) discharging the resultant ethane-containing reaction product from said zone; and
- (d) immediately cooling said product.

CLMS(2)

- 2. The process of claim 1, wherein the reactor zone comprises a fluidized bed of inert solids.

CLMS(3)

- 3. The process of claim 1, wherein the feedstock hydrocarbons are at least 40 mole percent aromatic.

23 OCT 92 10:50:20

U.S. Patent & Trademark Office

P0034

US PAT NO: 4,433,193

L5: 35 of 72

CLMS(3)

CLMS(4)

- 4. The process of claim 1 comprising the further step of adding methane to the hydrogen.

CLMS(5)

- 5. The process of claim 1 comprising the further step of adding methane to the hydrogen in the hydrogenating gas in amounts in the order of about 25 molar percent to about 75 molar percent based on the total amount of hydrogen.

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U.S. Patent & Trademark Office

P0035

US PAT NO: 4,433,193

L5: 35 of 72

CLMS(6)

- 6. The process of claim 1, wherein the reaction zone is essentially isothermal.

CLMS(7)

- 7. The process of claim 1, wherein the feedstock in the reaction zone is heated essentially exclusively through heat of reaction of said feedstock.

CLMS(8)

- 8. The process of claim 1, wherein the residence time is less than about 3 seconds.

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U.S. Patent & Trademark Office

P0036

US PAT NO: 4,433,193

L5: 35 of 72

CLMS(8)

CLMS(9)

- 9. The process of claim 1, wherein the temperature in the reaction zone is between 1200.degree. and 1500.degree. F.

CLMS(10)

- 10. The process of claim 1, wherein the pressure in the reaction zone is

US PAT NO: 3,617,744 IMAGE AVAILABLE
TITLE: FAR INFRARED WAVE GENERATOR OR MIXER

LS: 72 of 72

=> d ab 15 35

US PAT NO: 4,433,193

LS: 35 of 72

ABSTRACT:

An improved process for producing ethane from aromatic hydrocarbons is described. Hydrogen and the hydrocarbons are introduced into a catalytically inert reactor zone and are reacted under closely controlled conditions which provide an enhanced yield of ethane.

23 OCT 92 10:49:08

U.S. Patent & Trademark Office

P0030

US PAT NO: 4,433,193

LS: 35 of 72

=> d kwic 15 35

US PAT NO: 4,433,193

LS: 35 of 72

DETDESC:

DETD(4)

An . . . both the feedstock employed and in the manner in which the reaction is carried out. In accordance with this invention, ethane production is maximized with an accompanying and unexpected decrease in in coking. Moreover, this is accomplished without the need of a . . .

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U.S. Patent & Trademark Office

P0031

US PAT NO: 4,433,193

LS: 35 of 72

DETD(4)

DETDESC:

DETD(35)

These results show the markedly increasing selectivity of ethane production encountered at shorter residence times in accordance with the process.

=> d clms 15 35

US PAT NO: 4,433,193

LS: 35 of 72

23 OCT 92 10:50:04

U.S. Patent & Trademark Office

P0032

US PAT NO: 4,433,193

LS: 35 of 72

CLAIMS:

CLMS(1)

We claim:

1. A process for the production of ethane comprising:
 - (a) introducing a feedstock comprising mainly aromatic hydrocarbons and hydrogen into a non-catalytic reactor zone, the amount of hydrogen being between 1 and 4 times the stoichiometric requirement to convert all carbon in said feedstock into methane;
 - (b) reacting said feedstock at a temperature between 1100.degree. and 1600.degree. F. and pressure between 300 and 2500 psia for less than 240 seconds;

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U.S. Patent & Trademark Office

P0033

US PAT NO:	3,994,190	L5: 55 of 72	
TITLE:	Simultaneous transmission of periodic spectral components by plural interferometric means		
US PAT NO:	3,982,207	L5: 56 of 72	
TITLE:	Quantum effects in heterostructure lasers		
US PAT NO:	3,934,210 [IMAGE AVAILABLE]	L5: 57 of 72	
TITLE:	Tuning apparatus for an optical oscillator		
US PAT NO:	3,914,618 [IMAGE AVAILABLE]	L5: 58 of 72	
23 OCT 92 10:47:42	U.S. Patent & Trademark Office		P0026
US PAT NO:	3,914,618 [IMAGE AVAILABLE]	L5: 58 of 72	
TITLE:	TWO-PHOTON PUMPED FREQUENCY CONVERTER AND METHOD		
US PAT NO:	3,907,920	L5: 59 of 72	
TITLE:	Two-stage hydrolysis-cracking process for producing ethylene		
US PAT NO:	3,843,258	L5: 60 of 72	
TITLE:	DUAL BEAM ABSORPTION TYPE OPTICAL SPECTROMETER		
US PAT NO:	3,792,287 [IMAGE AVAILABLE]	L5: 61 of 72	
TITLE:	NON-LINEAR OPTICAL CRYSTAL AND DEVICES		
US PAT NO:	3,719,411 [IMAGE AVAILABLE]	L5: 62 of 72	
23 OCT 92 10:47:52	U.S. Patent & Trademark Office		P0027
US PAT NO:	3,719,411 [IMAGE AVAILABLE]	L5: 62 of 72	
TITLE:	CONTINUOUS COUPLING OF TUNABLE OR BROAD BAND RADIATION INTO THIN FILM WAVEGUIDES		
US PAT NO:	3,697,888 [IMAGE AVAILABLE]	L5: 63 of 72	
TITLE:	EVANESCENT WAVE COUPLING TECHNIQUE FOR BEAM SHAPING		
US PAT NO:	3,697,185	L5: 64 of 72	
TITLE:	METHOD AND APPARATUS FOR THE TIME SHARING OF MULTIPLE CHANNEL ANALYSIS MEANS		
US PAT NO:	3,675,039 [IMAGE AVAILABLE]	L5: 65 of 72	
TITLE:	COHERENT OPTICAL DEVICES EMPLOYING ZINC GERMANIUM PHOSPHIDE		
US PAT NO:	3,662,183	L5: 66 of 72	
23 OCT 92 10:48:03	U.S. Patent & Trademark Office		P0028
US PAT NO:	3,662,183	L5: 66 of 72	
TITLE:	CONTINUOUSLY TUNABLE OPTICAL PARAMETRIC OSCILLATOR		
US PAT NO:	3,655,993 [IMAGE AVAILABLE]	L5: 67 of 72	
TITLE:	OPTICALLY ROTATORY DIELECTRIC-GUIDED PARAMETRIC OSCILLATORS		
US PAT NO:	3,654,482	L5: 68 of 72	
TITLE:	MIRRORLESS OPTICAL CAVITY		
US PAT NO:	3,628,186	L5: 69 of 72	
TITLE:	PARAMETRIC OSCILLATOR WITH NONRESONANT SIGNAL		
US PAT NO:	3,628,182 [IMAGE AVAILABLE]	L5: 70 of 72	
TITLE:	RING-TYPE PARAMETRIC OSCILLATOR		
23 OCT 92 10:48:13	U.S. Patent & Trademark Office		P0029
US PAT NO:	3,617,936	L5: 71 of 72	
TITLE:	FREQUENCY CONTROL OF A PULSED PARAMETRIC OSCILLATOR BY		

TITLE:	light dispersion measuring apparatus		
US PAT NO:	4,405,865 [IMAGE AVAILABLE]	L5: 38 of 72	
TITLE:	Optical parametrons		
US PAT NO:	4,404,124	L5: 39 of 72	
TITLE:	Selective hydrogenation catalyst		
US PAT NO:	4,394,623 [IMAGE AVAILABLE]	L5: 40 of 72	
TITLE:	Ring cavity for a raman capillary waveguide amplifier		
23 OCT 92 10:47:02	U.S. Patent & Trademark Office		P0022
US PAT NO:	4,382,660 [IMAGE AVAILABLE]	L5: 41 of 72	
TITLE:	Optical transistors and logic circuits embodying the same		
US PAT NO:	4,381,923 [IMAGE AVAILABLE]	L5: 42 of 72	
TITLE:	Isotope separation with an infrared laser		
US PAT NO:	4,349,907 [IMAGE AVAILABLE]	L5: 43 of 72	
TITLE:	Broadly tunable picosecond IR source		
US PAT NO:	4,222,011 [IMAGE AVAILABLE]	L5: 44 of 72	
TITLE:	Stokes injected Raman capillary waveguide amplifier		
US PAT NO:	4,213,060	L5: 45 of 72	
TITLE:	Tunable infrared source employing Raman mixing		
23 OCT 92 10:47:12	U.S. Patent & Trademark Office		P0023
US PAT NO:	4,189,652	L5: 46 of 72	
TITLE:	Beam splitter coupled CDSE optical parametric oscillator		
US PAT NO:	4,180,751	L5: 47 of 72	
TITLE:	Mode-locked optical parametric oscillators apparatus		
US PAT NO:	4,177,202	L5: 48 of 72	
TITLE:	Methanation of synthesis gas		
US PAT NO:	4,157,949	L5: 49 of 72	
TITLE:	Catalytic process for treating light gasoline stocks		
US PAT NO:	4,146,504	L5: 50 of 72	
23 OCT 92 10:47:21	U.S. Patent & Trademark Office		P0024
US PAT NO:	4,146,504	L5: 50 of 72	
TITLE:	Porous powders and a method for their preparation		
US PAT NO:	4,032,419 [IMAGE AVAILABLE]	L5: 51 of 72	
TITLE:	Method and apparatus for separating uranium isotopes		
US PAT NO:	4,012,457	L5: 52 of 72	
TITLE:	Thermal cracking method for the production of ethylene and propylene in a molten metal bath		
US PAT NO:	4,005,937	L5: 53 of 72	
TITLE:	Simultaneous interferometric transmission of periodic spectral components		
US PAT NO:	3,999,854	L5: 54 of 72	
23 OCT 92 10:47:32	U.S. Patent & Trademark Office		P0025
US PAT NO:	3,999,854	L5: 54 of 72	
TITLE:	Simultaneous interferometric transmission of periodic spectral		

US PAT NO:	5,026,938 [IMAGE AVAILABLE]	L5: 19 of 72	
TITLE:	Process for upgrading light apparatus		
US PAT NO:	5,017,806 [IMAGE AVAILABLE]	L5: 20 of 72	
TITLE:	Broadly tunable high repetition rate femtosecond optical parametric oscillation		
US PAT NO:	4,950,828 [IMAGE AVAILABLE]	L5: 21 of 72	
TITLE:	Process for upgrading light paraffins		
23 OCT 92 10:46:22	U.S. Patent & Trademark Office		P0018
US PAT NO:	4,946,813 [IMAGE AVAILABLE]	L5: 22 of 72	
TITLE:	Catalysts for upgrading light paraffins		
US PAT NO:	4,946,812 [IMAGE AVAILABLE]	L5: 23 of 72	
TITLE:	Catalyst for upgrading light paraffins		
US PAT NO:	4,891,463	L5: 24 of 72	
TITLE:	Aromatization of aliphatics over a zeplite containing framework gallium		
US PAT NO:	4,808,763	L5: 25 of 72	
TITLE:	Process for upgrading light paraffins		
US PAT NO:	4,806,701	L5: 26 of 72	
TITLE:	Process for upgrading light paraffins		
23 OCT 92 10:46:32	U.S. Patent & Trademark Office		P0019
US PAT NO:	4,720,453	L5: 27 of 72	
TITLE:	Detecting environmental pollutants with protoplasts in alginate matrix		
US PAT NO:	4,639,923 [IMAGE AVAILABLE]	L5: 28 of 72	
TITLE:	Optical Parametric Oscillation using urea crystal		
US PAT NO:	4,629,290 [IMAGE AVAILABLE]	L5: 29 of 72	
TITLE:	Liquid crystal compounds and method of preparation		
US PAT NO:	H 15	L5: 30 of 72	
TITLE:	Broadband source of picosecond radiation		
US PAT NO:	4,558,923 [IMAGE AVAILABLE]	L5: 31 of 72	
23 OCT 92 10:46:42	U.S. Patent & Trademark Office		P0020
US PAT NO:	4,558,923 [IMAGE AVAILABLE]	L5: 31 of 72	
TITLE:	Picosecond bistable optical switch using two-photon transitions		
US PAT NO:	4,493,764	L5: 32 of 72	
TITLE:	Separately supported polymetallic reforming catalyst		
US PAT NO:	4,484,015	L5: 33 of 72	
TITLE:	Selective hydrogenation		
US PAT NO:	4,477,590	L5: 34 of 72	
TITLE:	Separately supported polymetallic reforming catalyst		
US PAT NO:	4,433,193	L5: 35 of 72	
TITLE:	Process for the production of ethane		
23 OCT 92 10:46:52	U.S. Patent & Trademark Office		P0021
US PAT NO:	4,411,755 [IMAGE AVAILABLE]	L5: 36 of 72	
TITLE:	Laser-assisted isotope separation of tritium		

US PAT NO:	5,144,629 [IMAGE AVAILABLE]	L5: 2 of 72	
TITLE:	Multiwavelength solid state laser using frequency conversion techniques		
US PAT NO:	5,140,043 [IMAGE AVAILABLE]	L5: 3 of 72	
TITLE:	Stable ascorbic acid compositions		
23 OCT 92 10:45:40	U.S. Patent & Trademark Office		P0014
US PAT NO:	5,134,622 [IMAGE AVAILABLE]	L5: 4 of 72	
TITLE:	Diode-pumped optical parametric oscillator		
US PAT NO:	5,128,293 [IMAGE AVAILABLE]	L5: 5 of 72	
TITLE:	Catalyst for upgrading light paraffins		
US PAT NO:	5,117,126 [IMAGE AVAILABLE]	L5: 6 of 72	
TITLE:	Stacked optical parametric oscillator		
US PAT NO:	5,114,565 [IMAGE AVAILABLE]	L5: 7 of 72	
TITLE:	Reforming naphtha with boron-containing large-pore zeolites		
US PAT NO:	5,079,445 [IMAGE AVAILABLE]	L5: 8 of 72	
TITLE:	High output coupling cavity design for optical parametric oscillators		
23 OCT 92 10:45:51	U.S. Patent & Trademark Office		P0015
US PAT NO:	5,070,260 [IMAGE AVAILABLE]	L5: 9 of 72	
TITLE:	Ultrahigh-resolution optical parametric oscillator frequency measurement and synthesis system		
US PAT NO:	5,066,291 [IMAGE AVAILABLE]	L5: 10 of 72	
TITLE:	Solid-state laser frequency conversion system		
US PAT NO:	5,065,046 [IMAGE AVAILABLE]	L5: 11 of 72	
TITLE:	Method and apparatus for parametric generation of midinfrared light in KNbO ₃		
US PAT NO:	5,053,641 [IMAGE AVAILABLE]	L5: 12 of 72	
TITLE:	Tunable optical parametric oscillator		
US PAT NO:	5,052,806 [IMAGE AVAILABLE]	L5: 13 of 72	
23 OCT 92 10:46:01	U.S. Patent & Trademark Office		P0016
US PAT NO:	5,052,806 [IMAGE AVAILABLE]	L5: 13 of 72	
TITLE:	Apparatus for measuring non-absorptive scattering		
US PAT NO:	5,047,668 [IMAGE AVAILABLE]	L5: 14 of 72	
TITLE:	Optical walkoff compensation in critically phase-matched three-wave frequency conversion systems		
US PAT NO:	5,043,306 [IMAGE AVAILABLE]	L5: 15 of 72	
TITLE:	Catalysts for upgrading light paraffins		
US PAT NO:	5,034,951 [IMAGE AVAILABLE]	L5: 16 of 72	
TITLE:	Femtosecond ultraviolet laser using ultra-thin beta barium borate		
US PAT NO:	5,033,057 [IMAGE AVAILABLE]	L5: 17 of 72	
23 OCT 92 10:46:12	U.S. Patent & Trademark Office		P0017
US PAT NO:	5,033,057 [IMAGE AVAILABLE]	L5: 17 of 72	
TITLE:	Pump steering mirror cavity		

one such process involves the steps of (1) catalytic exchange of deuterium-bearing molecule XYD with tritiated water DTD from sources such as a heavy water fission reactor, to produce the tritium-bearing working molecules XYT and (2) photoselective dissociation of XYT to form a tritium-rich product. By an analogous procedure, tritium is separated from tritium-bearing materials that contain predominately hydrogen such as a light water coolant from fission or fusion reactors.

US PAT NO: 4,032,419 [IMAGE AVAILABLE]

LB: 2 of 2

23 OCT 92 10:44:37

U.S. Patent & Trademark Office

P0011

US PAT NO: 4,032,419 [IMAGE AVAILABLE]

LB: 2 of 2

ABSTRACT:

A uranium compound in the solid phase (uranium borohydride four) is subjected to radiation of a first predetermined frequency that excites the uranium-235 isotope-bearing molecules but not the uranium-238 isotope-bearing molecules. The compound is simultaneously subjected to radiation of a second predetermined frequency which causes the excited uranium-235 isotope-bearing molecules to chemically decompose but which does not affect the uranium-238 isotope-bearing molecules. Sufficient heat is then applied to the irradiated compound in the solid phase to vaporize the non-decomposed uranium-238 isotope-bearing molecules but not the decomposed uranium-235 isotope-bearing molecules, thereby physically separating the uranium-235 isotope-bearing molecules from the uranium-238 isotope-bearing molecules.

The uranium compound sample in the solid phase is deposited or grown in an elongated tube supported within a dewar vessel having a clear optical path

23 OCT 92 10:44:50

U.S. Patent & Trademark Office

P0012

US PAT NO: 4,032,419 [IMAGE AVAILABLE]

LB: 2 of 2

tail section surrounded by a coolant. Two sources of radiation are focused on the uranium compound sample. A heating element is attached to the elongated tube to vaporize the irradiated compound.

=>

ABSTRACT:

Methods for laser-assisted isotope separation of tritium, using infrared multiple photon dissociation of tritium-bearing products in the gas phase. One such process involves the steps of (1) catalytic exchange of a deuterium-bearing molecule XYD with tritiated water DTC from sources such as

US PAT NO: 4,411,755 [IMAGE AVAILABLE] L7: 1 of 2
a heavy water fission reactor, to produce the tritium-bearing working molecules XYT and (2) photoselective dissociation of XYT to form a tritium-rich product. By an analogous procedure, tritium is separated from tritium-bearing materials that contain predominately hydrogen such as a light water coolant from fission or fusion reactors.

US PAT NO: 4,032,419 [IMAGE AVAILABLE] L7: 2 of 2
ABSTRACT:
A uranium compound in the solid phase (uranium borohydride four) is subjected to radiation of a first predetermined frequency that excites the uranium-235 isotope-bearing molecules but not the uranium-238 isotope-bearing molecules. The compound is simultaneously subjected to radiation of a second predetermined frequency which causes the excited uranium-235 isotope-bearing molecules to chemically decompose but which does not affect the uranium-238

US PAT NO: 4,032,419 [IMAGE AVAILABLE] L7: 2 of 2
isotope-bearing molecules. Sufficient heat is then applied to the irradiated compound in the solid phase to vaporize the non-decomposed uranium-238 isotope-bearing molecules but not the decomposed uranium-235 isotope-bearing molecules, thereby physically separating the uranium-235 isotope-bearing molecules from the uranium-238 isotope-bearing molecules. The uranium compound sample in the solid phase is deposited or grown in an elongated tube supported within a dewar vessel having a clear optical path tail section surrounded by a coolant. Two sources of radiation are focused on the uranium compound sample. A heating element is attached to the elongated tube to vaporize the irradiated compound.

=> d his

(FILE 'USPAT' ENTERED AT 10:37:04 ON 23 OCT 92)
23 OCT 92 10:43:31 U.S. Patent & Trademark Office P0009

SET PAGELNGTH 19
SET LINELENGTH 78

L1 0 S OPTICAL(W) PARAMETRIC(W) OSCILLATOR(W) LASER
L2 49 S OPTICAL PARAMETRIC OSCILLATOR
L3 302 S (L2 OR METHANE(W) CONVERSION)
L4 0 S L2 AND METHANE CONVERSION
L5 72 S (L2 OR ETHANE(W) PRODUCTION)
L6 0 S L2 AND ETHANE PRODUCTION
L7 2 S L2 AND 204*?/CCLS

=> s 15 and 204*?/ccls
39104 204*?/CCLS
(204/?/CCLS)
L8 2 L5 AND 204*?/CCLS

=> d ab 18 1-2
23 OCT 92 10:44:26 U.S. Patent & Trademark Office P0010

US PAT NO: 4,411,755 [IMAGE AVAILABLE] L8: 1 of 2
ABSTRACT:
Methods for laser-assisted isotope separation of tritium, using infrared

LEGAL-REP: R. J. Guenther
Arthur J. Torsiglieri
23 OCT 92 11:46:39 U.S. Patent & Trademark Office P0005

=> d acc leg 5117126

US PAT NO: 5,117,126 [IMAGE AVAILABLE] ANS: 1
DATE ISSUED: May 26, 1992
TITLE: Stacked optical parametric oscillator
INVENTOR: Allen R. Geiger, Las Cruces, NM
ASSIGNEE: La Sen, Inc., Las Cruces, NM (U.S. corp.)
APPL-NO: 07/544,597
DATE FILED: Jun. 27, 1990
ART-UNIT: 251
PRIM-EXMR: Georgia Epps
LEGAL-REP: Kramer, Brufsky & Cifelli

=>

INPUT:

23 OCT 92 11:45:37

U.S. Patent & Trademark Office

P00003

US PAT NO: 4,433,193 ANS: 1
DATE ISSUED: Feb. 21, 1984
TITLE: Process for the production of ethane
INVENTOR: Paul E. Koppel, Lexington, MA
Joseph J. Williams, Sudbury, MA
Herman N. Woebcke, Stamford, CT
ASSIGNEE: Stone & Webster Engineering Corp., Boston, MA (U.S. corp.)
APPL-NO: 06/312,157
DATE FILED: Oct. 16, 1981
ART-UNIT: 116
PRIM-EXMR: Delbert E. Gantz
ASST-EXMR: Lance Johnson
LEGAL-REP: Hedman, Gibson, Cassella, Gibson & Costigan

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U.S. Patent & Trademark Office

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US PAT NO: 3,617,936 ANS: 1
DATE ISSUED: Nov. 2, 1971
TITLE: FREQUENCY CONTROL OF A PULSED PARAMETRIC OSCILLATOR BY
RADIATION INJECTION
INVENTOR: John E. Bjorkholm, Middletown, NJ
ASSIGNEE: Bell Telephone Laboratories, Incorporated, Murray Hill, NJ
APPL-NO: 04/827,708
DATE FILED: May 26, 1969
ART-UNIT: 252
PRIM-EXMR: Roy Lake
ASST-EXMR: Darwin R. Hostetter
LEGAL-REP: R. J. Guenther
Arthur J. Torsiglieri

23 OCT 92 11:46:39

U.S. Patent & Trademark Office

P00005

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LEGAL-REP: R. J. Guenther
Arthur J. Torsiglieri
23 OCT 92 11:46:39 U.S. Patent & Trademark Office

P0005

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US PAT NO: 5,117,126 [IMAGE AVAILABLE] ANS: 1
DATE ISSUED: May 26, 1992
TITLE: Stacked optical parametric oscillator
INVENTOR: Allen R. Geiger, Las Cruces, NM
ASSIGNEE: La Sen, Inc., Las Cruces, NM (U.S. corp.)
APPL-NO: 07/544,597
DATE FILED: Jun. 27, 1990
ART-UNIT: 251
PRIM-EXMR: Georgia Epps
LEGAL-REP: Kramer, Brufsky & Cifelli

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23 OCT-92 11:45:37

U.S. Patent & Trademark Office

P00003

US PAT NO: 4,433,193 ANS: 1
DATE ISSUED: Feb. 21, 1984
TITLE: Process for the production of ethane
INVENTOR: Paul E. Koppel, Lexington, MA
Joseph J. Williams, Sudbury, MA
Herman N. Woebecke, Stamford, CT
ASSIGNEE: Stone & Webster Engineering Corp., Boston, MA (U.S. corp.)
APPL-NO: 06/312,157
DATE FILED: Oct. 16, 1981
ART-UNIT: 116
PRIM-EXMR: Delbert E. Gantz
ASST-EXMR: Lance Johnson
LEGAL-REP: Hedman, Gibson, Cassella, Gibson & Costigan

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U.S. Patent & Trademark Office

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US PAT NO: 3,617,936 ANS: 1
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TITLE: FREQUENCY CONTROL OF A PULSED PARAMETRIC OSCILLATOR BY
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